

Death by suicide in US military during the Afghanistan and Iraq wars



Deaths by suicide in US service members and veterans have risen substantially since 2005, leading to substantial investment in research, prevention, and treatment initiatives for suicides and underlying mental health conditions.¹⁻⁷ An article by Yu-Chu Shen and colleagues⁸ in *The Lancet Psychiatry* sheds new light on the risk of death by suicide in active duty personnel (including reservists activated >30 days) during and after leaving military service, and highlights the remaining challenges and research priorities.

Because upward trends in suicide have coincided with 15 years of military operations in Afghanistan and Iraq, a key research focus has been on the risk associated with deployments. The investigators of published studies have sometimes reached conflicting or even counterintuitive conclusions concerning any deployment associations.²⁻⁷ Although Shen and colleagues' methods are similar to those of three other large studies^{2,4,5} linking military or veteran demographic, occupational, and medical data with national death records that showed no association of deployment with suicides, their study⁸ covered a more extensive time period (2001–11), and provided refined analyses of the timing of deployments.

The findings of Shen and colleagues' study confirmed that deployments to Afghanistan and Iraq were not associated with death by suicide overall, but that suicide risk varied by time—it was significantly lower during deployment (hazard ratio [HR] 0.51, 95% CI 0.41–0.62), and significantly higher for the first 4 years after deployment, dropping off thereafter (for example, for suicide within 3 quarters after deployment: HR 1.54, 95% CI 1.19–2.00; for those who had returned from deployment more than 15 quarters ago: HR 1.03, 0.93–1.12). The deployment-related risk was small compared with risk associated with mental disorders, history of suicide attempt, or being male, and no greater than the risk associated with demotion during service and certain sociodemographic factors (eg, recent divorce or younger age). One caveat is that the investigators did not have data on combat exposure or other deployment experiences, which might have masked a higher risk in specific subgroups.⁷ No doubt that the risk of suicide involves complicated

interactions; paradoxically, post-traumatic stress disorder, the psychiatric diagnosis most likely associated with combat deployment, was the only diagnosis not independently associated with suicide.⁸

Shen and colleagues also examined the hypothesis that suicide trends were associated with a decline in the standards for accession into military service during the height of the wars. One measure of military accession standards is the number of accession waivers granted to individuals applying for military service, which increased somewhat during the wars. An accession waiver is an administrative determination that permits some applicants with potentially disqualifying but stable medical conditions or minor criminal convictions to be able to access into the military. Although results from a previous study³ showed no association between accession waivers and suicides in Army personnel, Shen and colleagues identified a small risk associated with pre-existing drug or non-drug related offences, but not the largest category of waivers, mental disorders. This outcome is probably due to mental disorder waivers only being granted to individuals willing to report well treated pre-existing conditions.

Notwithstanding the extent of research up to now, none of these epidemiological investigations have been able to answer the overarching question of why the incidence of suicide in service members rose so strikingly during these war years. For decades, demographically adjusted suicide rates were significantly lower in military personnel than civilians, presumably due to healthy-worker effects.⁹ Between 2005 and 2009, the incidence of suicide nearly doubled in both deployed and non-deployed US Army and Marine personnel, matching or slightly surpassing civilian rates, and has remained high since. This substantial increase occurred only in these two service branches; rates in US Navy and Air Force personnel remained well below civilian norms, with small increases paralleling changes nationally.

Without any definitive explanation for these trends, we are left to extrapolate from service differences. Although accessions requirements are generally similar across services, deployment rotations to Iraq and Afghanistan were much heavier for ground combat (Army and Marine)



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personnel, who endured frequent lengthy rotations, comparatively short dwell time between deployments, and intense training schedules when not deployed that took substantial additional time away from home. The scarcity of transition time in the face of constant preparation for imminent deployments no doubt affected the force at large for many years, including seasoned personnel, as well as those newly acclimatising to military life. Not only did suicide rates increase for both deployed and non-deployed personnel, but mental disorder prevalence and treatment also increased.⁹ Thus, global occupational strain related to these wars is the likely explanation for this rise in deaths by suicide, although not necessarily in the direct way most researchers expected. This explanation, although evidently simple, is not readily verifiable epidemiologically.

Perhaps the most important finding of Shen and colleagues' research concerns the effect of another important transition, from active duty to veteran status, on the risk of death by suicide. The risk was two to three times higher during the first 5 years after service separation, and was particularly high if separated in the first 6 months of service. These findings parallel data from Veterans Affairs (VA),¹⁰ which show substantial rises in suicide rates, particularly for younger veterans aged 18–29 (in both men and women). Although veteran suicide rates overall have risen gradually since 2001 and are now approximately 20% higher than demographically matched civilians, rates in veterans aged 18–29 years were two to three times higher than those in civilians in 2001, and have risen to over four times higher since.¹⁰ This problem is a complex one to address because veterans represent a heterogeneous population; this age group, for example, would encompass veterans who completed service contracts honourably (and have VA eligibility), as well as those who received less than honourable separations, or failed initial entry training during their first few months of service.

In summary, the findings from Shen and colleagues' study refines our understanding of military and veteran suicide epidemiology, but highlights crucial gaps in public health knowledge on the causes of changes in suicide rates during these war years, and the high risk of suicide in veterans who have recently separated from the military. An active area of research involves validation of

risk models that might help target interventions toward higher-risk groups.^{8,11,12} Further research is needed on the efficacy and risks of screening, education, and treatment initiatives.⁹ Since mental disorders are the strongest modifiable predictors for suicide, interventions to foster greater engagement in care and reduce treatment dropouts (especially during periods of transition) remain high priorities.⁹

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- 1 Hoge CW, Ivany CG, Brusher EA, et al. Transformation of mental health care for US soldiers and families during the Iraq and Afghanistan wars: where science and politics intersect. *Am J Psychiatry* 2016; **173**: 334–43.
- 2 LeardMann CA, Powell TM, Smith TC, et al. Risk factors associated with suicide in current and former US military personnel. *JAMA* 2013; **310**: 496–506.
- 3 Schoenbaum M, Kessler RC, Gilman SE, et al; Army STARRS Collaborators. Predictors of suicide and accident death in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *JAMA Psychiatry* 2014; **71**: 493–503.
- 4 Reger MA, Smolenski DJ, Skopp NA, et al. Risk of suicide among US military service members following Operation Enduring Freedom or Operation Iraqi Freedom deployment and separation from the US military. *JAMA Psychiatry* 2015; **72**: 561–69.
- 5 Kang HK, Bullman TA, Smolenski DJ, Skopp NA, Gahm GA, Reger MA. Suicide risk among 1.3 million veterans who were on active duty during the Iraq and Afghanistan wars. *Ann Epidemiol* 2015; **25**: 96–100.
- 6 Hoge CW, Warner CH, Castro CA. Mental health and the Army [Letter]. *JAMA Psychiatry* 2014; **71**: 965–66.
- 7 Bryan CJ, Griffith JH, Pace BT, et al. Combat exposure and risk for suicide thoughts and behaviors among military personnel and veterans: a systematic review and meta-analysis. *Suicide Life-Threatening Behavior* 2015, published April 8. DOI:10.1111/sltb.12163.
- 8 Shen YC, Cunha JM, Williams TV. Time-varying associations of suicide with deployments, mental health conditions, and stressful life events among current and former US military personnel: a retrospective multivariate analysis. *Lancet Psychiatry* 2016; published online Sept 30. [http://dx.doi.org/10.1016/S2215-0366\(16\)30304-2](http://dx.doi.org/10.1016/S2215-0366(16)30304-2).
- 9 Hoge CW, Castro CA. Preventing suicides in US service members and veterans: concerns after a decade of war. *JAMA* 2012; **308**: 671–72.
- 10 Office of Suicide Prevention, US Department of Veterans Affairs. Suicide among veterans and other Americans, 2001–14. Washington DC: US Department of Veterans Affairs, August 3, 2016. <http://www.mentalhealth.va.gov/docs/2016suicidedatareport.pdf> (accessed August 22, 2016).
- 11 McCarthy JF, Bossarte RM, Katz IR, et al. Predictive modeling and concentration of risk of suicide: implications for preventive interventions in the US department of Veteran Affairs. *Am J Public Health* 2015; **105**: 1935–42.
- 12 Kessler RC, Stein MB, Petukhova MV, et al. Predicting suicides after outpatient mental health visits in the Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). *Mol Psychiatry* 2016; published July 19. DOI:10.1038/mp.2016.110.